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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/549,453

09/14/2005

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125333

1664

25944 7590 12/03/2008
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EXAMINER

ROSE, ROBERT A

ART UNIT

PAPER NUMBER

3727

MAIL DATE

DELIVERY MODE

12/03/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/549,453
Filing Date: September 14, 2005
Appellant(s): UENO, JUNICHI

William P. Berridge
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed September 10, 2008 appealing from the Office action mailed June 11, 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

10-180623	SUSUMU ET AL	07-1998
10-202511	FUMINARI ET AL	08-1998

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 11, and 19-31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claimed limitation of "more than 20%" as a critical lower limit of acceptable holes size ratio (the ratio of the sum total area of through-holes to the entire area of the carrier), is deemed to constitute new matter. Appellant's specification clearly allows for ratios smaller than this recited lower starting limit, and at the time of filing Appellant did not have sole possession of this newly claimed range with 20% as a lower starting limit. In re Wilder, 736 F. 2d 1516, 222 USPQ 369 (Fed Cir. 1984)

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11, 19, 23, 27, and 31 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Susumu et al (Japan No. 10-180623). Susumu et al discloses a wafer holding carrier and double-sided polishing apparatus comprising all of the subject matter set forth in Appellant's claims above. A plurality of polishing-agent passing holes are distributed over the main surface of the carrier to facilitate delivery to the underside of the wafers being polished. Note figure 3 of Susumu et al wherein the holes lie on concentric circles. While the holes size ratio (the ratio of the sum total area of through-

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holes to the entire area of the carrier) in Susumu et al is given as .8%-20%, it is clear from figure 4 that carriers having ratios greater than 20% were produced, although arbitrarily, the cutoff of acceptability was determined to be 20%, based upon an increased tendency for crack formation at higher ratios. It is clear that wafer carriers having holes size ratios of greater than 20% were conceived and/or produced by Susumu et al.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11, 19, 21, 23, 25, 27, 29, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Susumu et al. (Japan No. 10-180623). Appellant's specification is completely silent as to any criticality of the holes size ratio being "more than 20%". It is evident from Appellant's specification that values as low as 15% would work equally well as values somewhat greater than 20%. Without convincing evidence to the contrary, such holes size ratio is regarded as being an obvious matter of design choice to those of ordinary skill in the art depending upon the acceptable tolerances and degree of durability desirable in the final product. With regard to claim 29, the rate of delivery of polishing agent is a conventional polishing parameter which would be readily determined by routine experimentation on the part of those of ordinary skill in the art.

Claims 20, 22, 24, 26, 28, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Susumu et al (Japan No. 10-180623) in view of Fuminari et al (Japan

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No. 10-202511). Fuminari et al disclose a double-sided wafer polishing apparatus comprising a wafer carrier moved in a curvilinear translational orbiting motion without rotation. To provide an eccentrically driven carrier in place of the sun and internal gear arrangement in Susumu et al, to deliver a more uniform motion across the wafers would have been obvious in view of Fuminari et al. With regard to claim 22, the Shore A hardness of the polishing pads is dependent upon the material chosen. Since the disclosed polishing pad materials are admittedly those conventionally used in the wafer polishing art, such selection by those of ordinary skill in this art would amount to no more than an obvious selection of a known material based upon its suitability for the intended use. With regard to claim 30, the rate of delivery of polishing agent is a parameter which would be readily determined by routine experimentation on the part of those of ordinary skill in the art. These limitations appearing in Appellant's dependent claims have not been separately argued by Appellant, and are considered to stand or fall with the independent claim.

(10) Response to Argument

Appellant's arguments filed September 10, 2008 have been fully considered but they are not persuasive. Appellant has argued that the rejection under 35 USC 112, 1st paragraph should not be maintained, since Appellant has provided evidence of data points within the newly recited narrower range of hole size ratio. The narrower lower limit of holes size ratio of "greater than 20%" as a starting limit, was not conceived by Appellant at the time of filing the application, and was only introduced as a critical starting point after reviewing the art applied against the broader range. There is

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absolutely no criticality assigned to this lower limit as a starting point, and Appellant's specification clearly allows for lower ratios than 20%.

With regard to the art rejections, Appellant has attempted to contrast polishing with lapping, maintaining that the two processes are not the same, and therefore reasons that the prior art cannot anticipate the invention. It is well-known throughout the wafer processing art that both terms are used interchangeably to denote an abrading process, which typically utilizes an abrasive slurry in frictional contact with the wafer to reduce roughness or planarize a surface of the wafer. Thus, these terms are regarded as synonymous, and are interchangeable. Appellant had amended claim 11 during prosecution to further introduce the additional limitation, of an upper limit of total holes size being 30% or less of a main surface of the carrier. This limitation appears to be met by the arrangement of holes in Susumu et al. Note again, that it is clear from figure 4 of Susumi et al that holes size ratios greater than 20% were produced, and include holes size ratios within the range recited. Although not the preferred embodiment, this reference clearly teaches the required claimed range set forth by applicant in the claim in the reference figures which is clear evidence that it was known or used by others prior to appellant's invention. Appellant also appears to take issue with what figure 4 of Susumu et al discloses, arguing that the data points do not correspond with actual examples from the specification. It is clear from figure 4 that carriers with holes size ratios greater than 20% were made, since Susumu et al discusses the formation of cracks in the higher ranges of holes size ratios. Clearly, this could not be found other than by manufacturing such carriers and testing them.

With regard to the rejection under 35 USC 103, Appellant's specification does not appear to establish any criticality with respect to such range, and in the absence of convincing evidence to the contrary, such range is regarded as being an obvious matter of design choice to those of ordinary skill in the art. Susumu et al teach that the tendency for crack formation would limit the usefulness of manufacturing carriers with very high hole ratios, but as seen in figure 4 such increase is a continuous one, and not a step change at any particular value of hole size ratio. Thus, those of ordinary skill in the art would readily recognize that depending upon the particular desired tolerances of the final wafer product, it would be reasonable to expect that higher hole size ratios would be acceptable under at least some conditions.

With regard to the rejection of claims 20, 22, 24, 26, 28, and 30 relying upon Fuminari et al, Appellant has not argued the teachings of this secondary reference, except to remark that Fuminari et al does not provide any further guidance with regard to hole size ratio range. However, the Fuminari et al reference was merely applied to teach the expediency of providing a wafer carrier which is designed to move in a curvilinear translational orbital motion without rotation. To provide such an eccentrically driven carrier in place of the sun and internal gear carrier arrangement in Susumu et al, to deliver a more uniform motion across the wafers for more consistent polishing, would have been obvious in view of Fuminari et al. It should be emphasized that Appellant's invention is intended to be used in both types of prior art polishing machines, planetary and orbital, and that the problem of providing sufficient slurry transport to the underside of the wafer, is the same for both types. Moreover, the simple substitution of one known

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element for another to obtain predictable results, is an acceptable rationale for a conclusion of obviousness, based upon the court decision in KSR International Co. v. Teleflex Inc., 550 U.S., 82 USPQ2nd 1385 (2007).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Robert Rose/

Primary Examiner, Art Unit 3727

Conferees:

/Monica Carter/, SPE Art Unit 3727

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